FINAL EXAM Community Hurricane Preparedness (IS-324.a)

The final examination consists of 50 questions (ignore spaces on the answer sheet higher than 50) and should take no more than 60 minutes to complete. Carefully read each question and all the possible answers before marking your responses on the <u>electronic answer sheet</u>. There is only one correct response for each test item. You may refer to the course materials to help you answer the questions.

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1. The bigger the hurricane, the more intense it is.				
a. True b. False				
2. Winds circulate around a tropical storm or hurricane in which direction in the Northern Hemisphere?				
a. Clockwiseb. Counter-clockwise				
3. Which quadrant of a hurricane typically has the strongest winds?				
a. Left-frontb. Right-frontc. Left-reard. Right-rear				
4. When should you be most alert for hurricanes?				
 a. July 1 - September 1 b. June 1 - September 30 c. May 1 - October 31 d. June 1 - November 30 				
5. You explain to an official that a hurricane's forward speed and path can change considerably. She asks why and you respond:				

- a. Hurricanes are steered by other changing weather features around the storm
- b. Different ocean surface temperatures change a hurricane's speed and path
- c. Hurricanes tend to slow down and change direction at night
- d. Speed and path change as the hurricane moves through various origination zones
- 6. What is the main instrument for taking measurements of a tropical cyclone far out at sea?
- a. ASOS
- b. Radar

c. d.	Satellite Ship reports
ű.	omp repente
7. V	Why is the United States becoming more vulnerable to hurricanes?
a.	More hurricanes are traveling farther inland
b.	Hurricanes are becoming larger and more frequent.
C.	Our ability to forecast has been declining
d.	Increasing population in coastal areas make it more difficult to evacuate for a hurricane
8. F	low far out from a hurricane's center would you generally expect to find tropical storm-force winds?
a.	50 miles
b.	150 miles
C.	500 miles
d.	600 miles

a.

b.

C.

a.

a.

b.

C.

d.

High winds

b. Tornadoesc. Storm surged. Heavy rain

9. Of the following, which is the advantage of geostationary satellite imagery?

It can be used to monitor the hurricane both almost continuously

It can accurately predict the intensity and movement of the storm

11. What is significant about the right-front quadrant of a hurricane?

10. What hazard associated with a hurricane generally causes the most deaths in inland areas?

12. The expected inundation from storm surge is the main consideration in determining what coastal

It can accurately predict forward speed

It can be used to estimate storm surge

That quadrant appears on Doppler radar

Storm surge is enhanced in that quadrant

Fewer tornadoes occur in that quadrant

That quadrant has more rainbands

areas should be evacuated.

True

a. b. c. d.	Trace of rain 1-3 inches of rain 3-6 inches of rain More than 6 inches of rain				
14.	14.HURREVAC is used to				
a. b. c. d.	Predict where and when a hurricane will make landfall Help make decisions about who should evacuate and when Collect community characteristics data used in Hurricane Evacuation Studies Apply for a federal disaster declaration				
15. What is storm tide?					
a. b. c. d.	The astronomical tide level occurring when the storm makes landfall The storm surge + astronomical tide The storm surge + astronomical tide + waves The storm surge + astronomical tide + wind surge				
16. What tool is used to assess how high storm surge might be?					
a. b. c. d.	HURREVAC Saffir-Simpson scale SLOSH HURRTRACK				
17. A steep continental shelf offshore of a coastal community will likely result in worse storm surge impacts than if the shelf were shallow.					
a. b.	True False				
18. A Hurricane Evacuation Study collects data on community characteristics, vulnerabilities, transportation, and hazards					
a.	True				

b. False

b. False

13. A typical hurricane can bring:

19. As a hurricane or tropical storm approaches your location, its forward speed decreases from 20 kt to 10 kt. How might that affect rainfall?				
 a. Less flooding because rain will have more time to soak into the ground b. Less total rainfall from a weakening system c. More total rainfall from a slower moving storm d. Shorter period under the rainbands 				
20. What does the Saffir-Simpson scale describe?				
 a. Potential surge heights expected with different categories of storm intensity b. Number of tornadoes expected with different wind speed ranges c. Potential damage expected from different storm surge levels d. Potential damage expected with different wind speed ranges 				

21. Once a hurricane or tropical cyclone moves over land, the threat from flooding and tornadoes can

22. Within a few hours of making landfall, high winds from a hurricane or tropical storm are no longer

23. If HURREVAC indicates that your community has a 15% probability of having hurricane winds when landfall is expected 72 hours from now, you can be reasonably confident that you will probably only have

False, because the probabilities may increase as the storm comes closer

25. Which statement about the official NHC track and intensity forecasts is correct?

True, because the chances are well below 50% that the community will have hurricane-force winds

24. As long as your community is outside the track forecast cone, it is safe from hazards associated with

continue for days.

True

False

dangerous.

True

False

tropical storm-force winds.

a hurricane or tropical storm.

True

False

a.

a.

a.

b.

a.

- Errors in forecasting track and intensity are generally greater for forecast times farther in the future
- b. Errors in forecasting hurricane intensity have improved faster than errors in forecasting tracks
- c. The track errors for the 24 hour forecast are about the same as the errors for the 120 hr forecast
- d. The intensity errors for the 24 hour forecast are about the same as the errors for the 120 hr forecast
- 26. A tropical storm watch means tropical storm-force winds are:
- a. Expected within 36 hours
- b. Expected within 48 hours
- c. Possible within 36 hours
- d. Possible within 48 hours
- 27. A hurricane warning means hurricane-force winds are generally:
- a. Expected within 36 hours
- b. Expected within 48 hours
- c. Possible within 36 hours
- d. Possible within 48 hours
- 28. Who coordinates information requests between emergency managers and the National Hurricane Center?
- a. Hurricane Liaison Team
- b. The Weather Channel
- c. Hurricane Specialists Unit
- d. Tropical Analysis and Forecast Branch
- 29. Which agency disseminates coastal watches and warnings for tropical storms and hurricanes?
- a. Local NWS Weather Forecast Offices
- b. The Weather Channel
- c. National Hurricane Center
- d. Tropical Analysis and Forecast Branch
- 30. Which agency disseminates warnings for inland tropical storm or hurricane force winds?
- a. The Weather Channel
- b. Local NWS Weather Forecast Offices
- c. National Hurricane Center
- d. Tropical Analysis and Forecast Branch
- 31. To get more detailed information about the current and predicted effects of the hurricane for your local area, you should?

- a. Read the latest tropical cyclone public advisory
- b. Talk with the Hurricane Liaison Team at the National Hurricane Center
- c. Read the latest hurricane local statement
- d. Read the latest tropical cyclone forecast discussions
- 32. If you wanted to determine where you were in relation to the current wind fields, which product would you look at?
- a. Special tropical cyclone public advisories
- b. Tropical cyclone forecast discussions
- c. Wind speed probability forecasts
- d. Surface wind field
- 33. If you wanted to get a sense of the forecaster's confidence in the models, which product would you read?
- a. Tropical cyclone public advisories
- b. Tropical cyclone forecast discussions
- c. Local NWS forecasts
- d. Hurricane local statements
- 34. Which product tells when tropical storm-force winds (greater than 39 mph) can be expected to subside?
- a. Track forecast cone
- b. Surface wind field
- c. Wind speed probability forecasts
- d. Hurricane local statements
- 35. Which is NOT a source of forecast error in NWP?
- a. Incomplete understanding of atmospheric physics
- b. Not enough observations
- c. Lack of radar data off the coast
- d. Observation inaccuracies
- 36. At 0900Z on the 24th, a tropical cyclone forecast/advisory contains the following information:

FORECAST VALID 24/1800Z 21.9N 78.1W MAX WIND 90 KT...GUSTS 110 KT. 64 KT... 30NE 0SE 0SW 0NW 50 KT...100NE 100SE 30SW 30NW 34 KT...135NE 125SE 75SW 125NW

What does this information tell you?

- a. The current and forecast wind speed until 18Z
- b. The past intensity of the hurricane at various times
- c. The predicted speed of the hurricane at 18Z
- d. The maximum radial extent of the wind fields at 18Z
- 37. What does the track forecast cone signify?
- a. The maximum error in NHC's tropical cyclone forecasts in the last five years
- b. Only citizens within this cone should be concerned with hurricane-force wind speeds
- c. Track forecast uncertainty
- d. The tropical cyclone's eye will broaden to the size of the cone within 48 hours
- 38. Hurricane watch and warning areas usually are larger than the expected damage swath to account for possible changes in track and intensity and possible forecast errors.
- a. True
- b. False
- 39. What is a critical source of information about community resources, behavior, and hazards that go into the hurricane sections of a community's Emergency Operations Plan?
- a. HURREVAC
- b. National Hurricane Center
- c. Hurricane Evacuation Study
- d. National Weather Service
- 40. The storm surge atlas provides information on:
- a. The worst-case storm surge associated with a Category 5 hurricane
- b. A map of the evacuation zones
- c. The average extent of storm surge flooding from any category hurricane
- d. The maximum storm surge flooding expected from any category hurricane
- 41. The area of the track forecast cone is drawn so that the actual position of the storm will be within the cone approximately?
- a. 10-25% of the time
- b. 30-40% of the time
- c. 60-70% of the time
- d. 80-90% of the time

- 42. In order to assure there is enough time to evacuate a community, the evacuation should start when:
 a. The hurricane is predicted to intensify
 b. Tropical storm-force winds are 36 hours from your location
 c. Hurricane-force winds are 48 hours from your location
 d. The tropical storm-force winds intersect the HURREVAC decision arc
- 43. Hurricane evacuation zones are primarily designed to move people out of areas vulnerable to:
- a. Storm surge
- b. High winds
- c. Hazardous chemicals and ruptured gas lines
- d. Traffic jams
- 44. When should you aim to have an evacuation be completed?
- a. When the tropical storm-force winds intersect the HURREVAC decision arc.
- b. After the arrival of tropical storm-force winds but before hurricane-force winds
- c. By the time tropical storm-force winds arrive
- d. Before the arrival of hurricane-force winds
- 45. The tropical storm-force winds of a Category 3 hurricane are forecast to intersect the decision arc for your community in 36 hours. For a hurricane of Category 4 intensity, it is estimated that your community will need 20 hours to evacuate to safety. How much time is there before the evacuation should be started?
- a. 16 hours
- b. 20 hours
- c. 36 hours
- d. 56 hours
- 46. The eye of a Category 2 hurricane is 450 nautical miles away and forecast to come ashore at your coastal location. The tropical storm-force winds extend 150 nautical miles. The hurricane is moving at 15 knots. If it maintains forward speed, how long before tropical storm-force winds begin to affect your community?
- a. 10 hours
- b. 20 hours
- c. 24 hours
- d. 30 hours
- 47. The eye of a Category 2 hurricane is 450 nautical miles away and forecast to come ashore at your coastal location. The tropical storm-force winds extend 150 nautical miles. If the hurricane's forward speed is 20 knots, how long before tropical storm-force winds begin to affect your community?

- a. 10 hours
- b. 15 hours
- c. 20 hours
- d. 30 hours
- 48. The eye of a Category 2 hurricane is 450 nautical miles away and forecast to come ashore at your coastal location. The tropical storm-force winds extend 150 nautical miles. The hurricane is moving at 15 knots. Assuming it takes 18 hours to evacuate your jurisdiction, when is the best time to call for an evacuation?
- a. Now
- b. 4 hours
- c. 5 hours
- d. 15 hours
- 49. Errors in forecasting the forward speed of the hurricane can affect:
- a. The expected category of hurricane intensity
- b. The time available before onset of tropical storm-force winds
- c. The radius of the tropical storm-force winds
- d. The size of the rainbands
- 50. If a hurricane is on course for your community, and it suddenly intensifies and gains forward speed, what are the results?
- a. Decision arc expands
- b. Decision arc shrinks
- c. Fewer people must be evacuated
- d. More time to complete evacuations